

Patent Claims

1. A heatable composite pane (1) having a trapezoidal outline and having a heating area (2) which is embedded in the composite and is formed from heating wires (3), which are laid alongside one another, and at least two busbars (4, 5) which connect the ends of a number of heating wires (3) to one another electrically in parallel and are located opposite along the side edges of the composite pane (1), which run parallel to one another, with at least one busbar (4S, 5S; 8) also extending along the side edge in the area of an outer triangular surface of the trapezoidal outline, and in which case at least one outer triangular surface of the trapezoidal outline is also occupied by further heating wires (6) which can be fed electrically via busbars (4S, 5; 5S; 8) and run essentially parallel to one another and to the heating wires (3) of the heating area (2), and with at least two groups of heating wires, which are electrically connected in series with one another, also being provided, characterized in that, in the area of the at least one outer triangular surface, heating wires (6) which are located parallel alongside one another and have different lengths are combined to form groups (6.1, 6.2, 6.3) connected in parallel, and in that at least two of these groups are electrically connected to one another in series such that the effective wire length between the two main busbars is increased, in order to homogenize the heating power in the triangular surface with the heating power in the heating area (2).

2. The heatable composite pane as claimed in claim 1, characterized in that additional busbars (7, 8) are used as a connection between in each case two groups (6.1, 6.2; 6.2, 6.3).
3. The heatable composite pane as claimed in claim 2, in which the additional
5 busbars (7, 8) are arranged in parallel with the busbars (4S and/or 5).
4. The heatable composite pane as claimed in claim 1, 2 or 3, in which the number of wires in the individual groups (6.1, 6.2, 6.3) is different or is the same.
5. The heatable composite pane as claimed in one of claims 1 to 4, in which limbs (4S, 5S) of the two busbars (4, 5) also extend along at least one side edge in
10 the area of the outer triangular surfaces of the trapezoidal outline, and end on both sides of a separation point (T).
6. The heatable composite pane as claimed in claim 5, in which external connections of the two busbars (4, 5) are arranged in the area of the free ends of the limbs (4S, 5S) on both sides of a separation point (T).
- 15 7. The heatable composite pane as claimed in one of the preceding claims, characterized in that the external connections of the at least two busbars (4, 5) are connected in a physically adjacent form close to a corner of the composite pane.
8. The heatable composite pane as claimed in one of the preceding claims characterized in that at least one of the busbars (4, 5) is subdivided into two
20 electrically separate sections, each of which has an external connection.

9. The heatable composite pane as claimed in one of the preceding claims, in which the side heating wires (6) have an electrical resistance per unit length which differs from that of the heating wires (3) in the central heating area (2).
10. The heatable composite pane as claimed in claim 9, whose side heating
5 wires (6) have a higher resistance than the heating wires (3) in the central heating area (2).
11. The heatable composite pane as claimed in claim 9, whose side heating wires (6) have a lower resistance than the heating wires (3) in the central heating area (2).
- 10 12. The heatable composite pane as claimed in one of the preceding claims, in which one or more side heating wires (6) are cut through in order to produce one or more passive wires which do not contribute to the heating power.
13. The heatable composite pane as claimed in one of the preceding claims, whose wires (3, 6) are placed on mounting sheets in a helical shape.
- 15 14. The heatable composite pane as claimed in one of the preceding claims, whose wires (3, 6) are rippled with short waves and amplitudes with respect to their longitudinal axis, which is essentially in a straight line.
15. The heatable composite pane as claimed in one of the preceding claims, characterized in that one or more of the busbars (4, 5, 4S, 5S, 7, 8) is or are
20 provided with external connections at antenna connecting points.

16. The heatable composite pane as claimed in one of the preceding claims, whose edge area is provided with an opaque colored strip which, in particular, optically coats the busbars.

17 Use of a heatable composite pane as claimed in one of the preceding claims
5 in a vehicle, in particular as its windshield or rear windshield.
